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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference GRA26011 PCT	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/US03/32579	International filing date *(day/month/year)* 16 October 2003 (16.10.2003)	Priority date *(day/month/year)* 16 October 2002 (16.10.2002)
International Patent Classification (IPC) or national classification and IPC IPC(7): H04Q 7/20 and US Cl.: 455/456.1		
Applicant ANDREW CORPORATION		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

   ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of ___ sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☐ Non-establishment of report with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
12 May 2004 (12.05.2004)	15 October 2004 (15.10.2004)
Name and mailing address of the IPEA/US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703)305-3230	Authorized officer Tanmay Lele Telephone No. (703) 305-3462

Form PCT/IPEA/409 (cover sheet)(July 1998)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/US03/32579

I. Basis of the report

1. With regard to the elements of the international application:*

☒ the international application as originally filed.

☒ the description:
pages 1-10 as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.

☒ the claims:
pages 11-14, as originally filed
pages NONE, as amended (together with any statement) under Article 19
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.

☒ the drawings:
pages 1-3, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.

☐ the sequence listing part of the description:
pages NONE, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule23.1(b)).

☐ the language of publication of the international application (under Rule 48.3(b)).

☐ the language of the translation furnished for the purposes of international preliminary examination(under Rules 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in printed form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages NONE

☐ the claims, Nos. NONE

☐ the drawings, sheets/~~fig~~ NONE

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

** Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).*
*** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.*

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/US03/32579

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. STATEMENT

Novelty (N)	Claims 1-27	YES
	Claims NONE	NO
Inventive Step (IS)	Claims NONE	YES
	Claims 1-27	NO
Industrial Applicability (IA)	Claims 1-27	YES
	Claims NONE	NO

2. CITATIONS AND EXPLANATIONS
Please See Continuation Sheet

Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient)

V. 2. Citations and Explanations:

Claims 1 - 27 lack an inventive step under PCT Article 33(3) as being obvious over Fischer et al. (Fischer, US Patent No. 6,295,455) in view of Stilip et al. (Stilip, US Patent No. 6,334,059).

Regarding claims 1 and 18, Fischer teaches of a method and system for generating an estimate of the geo-location of a frequency hopping mobile appliance operating within a wireless communication system with a plurality of base stations and having a network overlay geo-location system with a plurality of wireless location sensors (Figures 1 and 4), comprising the steps of monitoring at the wireless location sensors a signal on a forward channel between one of the plurality of base stations and the mobile appliance (Figures 1 and 4 and column 5, lines 38 -45 and column 8, lines 25 - 31); retrieving at said wireless location sensors synchronization information from the forward channel (column 10, lines 38 - 57 and column 8, lines 25 - 31); synchronizing said wireless location sensors with a reverse channel between the mobile appliance and the base station (column 5, lines 35 -46) measuring at said wireless location sensors an attribute of the reverse channel signal (column 5, lines 35 -46); and, generating an estimate of the geo-location of the mobile appliance based in part upon the measured attribute (column 5, lines 35 - 46).

Fischer does not specifically teach of as a function of the synchronization information from the forward channel to thereby receive at said wireless location sensors a signal on the reverse channel (though does make note of synchronization in column 10, lines 53 -57 and further of for TOA measured data).

In a related art dealing with position determination, Stilip teaches of as a function of the synchronization information from the forward channel to thereby receive at said wireless location sensors a signal on the reverse channel (column 41,lines 11 - 41).

It would have been obvious to one skilled in the art at the time of invention to have included into Fischer's mobile location system, Stilip's synchronization provisions, for the purposes of accurately determining location in the event of emergency, as taught by Stilip.

Regarding claim 2, Fischer in view of Stilip teach all the claimed limitations recited in claim 1. Both Fischer and Stilip further teach of wherein the step of monitoring is accomplished by a dedicated receiver at said wireless location sensors (Fischer: Figures 1 and 4 and column 6, lines 11 -19 and Stilip: column 9,lines 47 -58).

Regarding claim 3, Fisher in view of Stilip teach all the claimed limitations as recited in claim 1. Stilip further teaches of comprising the step of receiving in said wireless location system channel assignment information including hopping sequence (column 20, lines 27 -35 and column 58, lines 46 -58 and column 44, lines 44 -53).

Regarding claim 4, Fisher in view of Stilip teach all the claimed limitations as recited in claim 1. Stilip further teaches of wherein the synchronization information comprises hopping sequence position (column 20, lines 27 -35 and column 58, lines 46 -58 and column 44, lines 44 -53).

Regarding claim 5, Fisher in view of Stilip teach all the claimed limitations as recited in claim 1. Stilip further teaches of wherein the synchronization information comprises hopping sequence phase information (column 20, lines 27 -35 and column 58, lines 46 -58 and column 44, lines 44 -53).

Regarding claim 6, Fischer in view of Stilip teach all the claimed limitations recited in claim 1. Both Fischer and Stilip further teach of comprising the step of referencing the synchronization information with a network overlay clock (Fischer: column 14,lines 17

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(To be used when the space in any of the preceding boxes is not sufficient)

-23 and Stilip: column 24,lines 64 -66).

Regarding claim 7, Fischer in view of Stilip teach all the claimed limitations as recited in claim 6. Stilip further teaches further comprising the step of changing the monitoring frequency of the plurality of wireless location sensors based at least in part on the network overlay clock (Stilip: column 24,lines 38 - 66 and column 41, lines 11 -41).

Regarding claim 8, Fischer in view of Stilip teach all the claimed limitations as recited in claim 1. Stilip further teaches of wherein the plurality of wireless location sensors change monitoring frequency based in part on the synchronization information. (Stilip: column 24,lines 38 - 66 and column 41, lines 11 -41).

Regarding claim 9, Fischer teaches of in a method for geo-locating a mobile appliance comprising the steps of retrieving channel assignment information from a geolocation control system, monitoring a reverse channel at a plurality of sensors for a signal from the mobile appliance, measuring an attribute of the reverse channel signal at the plurality of sensors, and determining the location of the wireless appliance from the measured reverse channel signal attributes (Figures 1 and 4), the improvement comprising the steps of monitoring a signal in the forward channel to the mobile appliance (Figures 1 and 4 and column 5, lines 38 -45 and column 8, lines 25 - 31); retrieving synchronization information from the forward channel signal (column 10, lines 38 - 57 and column 8, lines 25 - 31); determining synchronization information for the reverse channel from the synchronization information retrieved from the forward channel (column 10, lines 38 - 57 and column 8, lines 25 - 31); and, measuring an attribute of a signal in the reverse channel from the mobile appliance to thereby geo-locate the mobile appliance (column 5, lines 35 - 46).

Fischer does not specifically teach of monitoring the reverse channel as a function of the determined synchronization information (though does make note of synchronization in column 10, lines 53 -57 and further of for TOA measured data).

In a related art dealing with position determination, Stilip teaches of monitoring the reverse channel as a function of the determined synchronization information (column 41,lines 11 - 41) and again of determining synchronization information for the reverse channel from the synchronization information retrieved from the forward channel (column 41,lines 11 - 41).

It would have been obvious to one skilled in the art at the time of invention to have included into Fischer's mobile location system, Stilip's synchronization provisions, for the purposes of accurately determining location in the event of emergency, as taught by Stilip.

Regarding claim 10, Fischer in view of Stilip teach all the claimed limitations recited in claim 9. Both Fischer and Stilip further teach of wherein the forward channel is a frequency hopping channel (Fischer: column 2,lines 60 -65 and Stilip: starting column 9, line 64 and ending column 10, line 4).

Regarding claim 11, Fischer in view of Stilip teach all the claimed limitations recited in claim 10. Both Fischer and Stilip further teach of wherein the reverse channel is a frequency hopping channel (Fischer: column 2,lines 60 -65 and Stilip: starting column 9, line 64 and ending column 10, line 4).

Regarding claim 12, Fischer in view of Stilip teach all the claimed limitations recited in claim 11. Both Fischer and Stilip further teach of including the step of receiving channel assignment information including hopping sequence and hop duration. (Fischer: column 2,lines 60 -65 and Stilip: starting column 9, line 64 and ending column 10, line 4 and column 44, lines 44 -51).

Regarding claim 13, Fisher in view of Stilip teach all the claimed limitations as recited in claim 11. Stilip further teaches of wherein the synchronization information comprises hopping sequence position (column 20, lines 27 -35 and column 58, lines 46 -58 and column 44, lines 44 -53).

Regarding claim 14, Fisher in view of Stilip teach all the claimed limitations as recited in claim 11. Stilip further teaches of wherein the synchronization information comprises hopping sequence phase information (column 20, lines 27 -35 and column 58, lines 46 -58 and column 44, lines 44 -53).

Regarding claim 15, Fischer in view of Stilip teach all the claimed limitations recited in claim 11. Both Fischer and Stilip further teach of comprising the step of referencing the synchronization information with a network overlay clock (Fischer: column 14,lines 17 -23 and Stilip: column 24,lines 64 -66).

Regarding claim 17, Fischer in view of Stilip teach all the claimed limitations as recited in claim 11. Stilip further teaches of wherein the plurality of wireless location sensors change monitoring frequency based in part on the synchronization information. (Stilip: column 24,lines 38 - 66 and column 41, lines 11 -41).

Regarding claim 19, Fischer in view of Stilip teach all the claimed limitations as recited in claim 18. Both Fischer and Stilip further teach of comprising circuitry for providing a stable time reference (Fischer: column 14,lines 17 -23 and Stilip: column 24,lines 64 -66).

Regarding claim 20, Fischer in view of Stilip teach all the claimed limitations as recited in claim 19. Both Fischer and Stilip further teach of wherein said circuitry is operably connected to each of said plurality of sensors (Fischer: column 14,lines 17 -23 and Stilip: column 24,lines 64 -66).

Regarding claim 21, Fischer in view of Stilip teach all the claimed limitations as recited in claim 20. Both Fischer and Stilip further teach of wherein said plurality of sensors are tuned to the reverse communication channel between the mobile appliance and one of the plural base station using said stable time reference (Fischer: column 14,lines 17 -23 and Stilip: column 24,lines 64 -66).

Regarding claim 22, Fischer in view of Stilip teach all the claimed limitations as recited in claim 19. Both Fischer and Stilip further teach of wherein said circuitry is a global positioning system clock (Fischer: column 14,lines 17 -23 and Stilip: column 24,lines 64 -66).

Regarding claim 23, Fischer teaches of in a wireless communication system with plural base stations and a network overlay geo-location system with a plurality of sensors wherein at least one of the plural base stations communicates with a wireless appliance over a forward channel and the wireless appliance communicates with the one of the plural base stations over a reverse channel the

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(To be used when the space in any of the preceding boxes is not sufficient)

reverse channel being a frequency hopping channel, a method of geo-location of the wireless appliance (Figures 1 and 4 and column 5, lines 38 -45 and column 8, lines 25 - 31), the steps of monitoring the forward channel for synchronization information (Figures 1 and 4 and column 10, lines 38 - 57 and column 8, lines 25 - 31).

Fischer does not specifically teach of wherein the forward channel and contains information to synchronize the base station with a hopping sequence of the mobile appliance over the reverse channel and tuning the plurality of sensors to the reverse channel with the synchronization information (though does make note of synchronization in column 10, lines 53 -57 and further of for TOA measured data).

In a related art dealing with position determination, Stilip teaches of wherein the forward channel and contains information to synchronize the base station with a hopping sequence of the mobile appliance over the reverse channel (column 41,lines 11 - 41) and tuning the plurality of sensors to the reverse channel with the synchronization information (column 41,lines 11 - 41).

It would have been obvious to one skilled in the art at the time of invention to have included into Fischer's mobile location system, Stilip's synchronization provisions, for the purposes of accurately determining location in the event of emergency, as taught by Stilip.

Regarding claim 24, Fischer in view of Stilip teach all the claimed limitations as recited in claim 19. Both Fischer and Stilip further teach of comprising the step of referencing the synchronization information to a system clock (Fischer: column 14,lines 17 -23 and Stilip: column 24,lines 64 -66).

Regarding claim 25, Fischer in view of Stilip teach all the claimed limitations as recited in claim 19. Both Fischer and Stilip further teach of wherein the plurality of sensors are tuned to the reverse channel using the system clock (Fischer: column 14,lines 17 - 23 and Stilip: column 24,lines 64 -66).

Regarding claim 26, Fischer in view of Stilip teach all the claimed limitations as recited in claim 19. Both Fischer and Stilip further teach of wherein the system clock is a global positioning system clock (Fischer: column 14,lines 17 -23 and Stilip: column 24,lines 64 -66).

Regarding claim 27, Fischer in view of Stilip teach all the claimed limitations as recited in claim 6. Stilip further teaches of further comprising the step of changing the monitoring frequency of the plurality of wireless location sensors based at least in part on a GSM system clock (Stilip: column 24,lines 38 - 66 and column 41, lines 11 -41 and column 43, lines 55 -64).

Regarding claims 1, 9, 18, and 23, Applicant attempts to overcome the rejection by stating, "The cited portions of Stilip relate to handoff coordination and does not related to acquiring for measurement [of] a frequency hopping channel." Examiner respectfully states that the claimed did not note, "measurement [of] a frequency hopping channel," but "[synchronizing] as a function of a the synchronization information from the forward channel to thereby receive at said wireless location sensors a signal on the reverse channel." Note that, as stated by Applicant and noted in Stilip, conversation is on-going (ie voice channel assignment information, as per column 41, lines 20 -27 for example) and thus control information (such as synchronization) can be acquired (column 41, lines 13 -19 and again starting column 41, line 66 and ending column 42, line 10; note further GSM systems which are TDMA systems, also transmit synchronization information for time slots during voice and data communications such as in the synchronization channel which is generally apart of the BCH, used specifically on the forward channel, traditionally in time slot 0, as in Fisher, Figure 1). It is reverently believed that since communications are on-going, forward and reverse links are inherent (further supported by Fisher, Figure 1 for example).

Continuing, with respect to Applicant's argument that, "Furthermore this synchronization is not taken from the forward channel, but rather from a query of the wireless communication system..." note that query is to obtain information about voice channel assignments (column 40, lines 56 -64) and thus on forward and reverse channel information, as these are the physical channels by which voice communications occur (note further in column 41, lines 1 -4, channel and time slot information are also queried).

Applicant additionally states, "nowhere is [in] Fischer is a discussion of frequency hopping or locating a frequency hopping mobile appliance as recited in the claim..." note that Fischer teaches the use of GSM (column 5, lines 28 -34) and theses system are known to support frequency hopping (as supported by Stilip, starting column 9, line 64 and ending column 10, line 4).

---------- NEW CITATIONS ----------